

21. A reproducing method comprising:

(a) reading sub data recorded in a separate bitstream from main data including audio data and/or video data, which is later reproduced in synchronization with the main data;

(b) reading extra data recorded in a separate bitstream from the main data and the sub data, which is later reproduced in connection with the main data; and

(c) multiplexing the read sub data and the read extra data.

22. The reproducing method of claim 21, further comprising (d1) outputting the multiplexed sub data and extra data through a digital interface.

23. The reproducing method of claim 21, further comprising (d2) decoding the multiplexed sub data and extra data.

24. The reproducing method of claim 21, wherein step (c) comprises:

(c1) reading navigation information defining a relation required for the read sub data and extra data to be reproduced in connection with each other; and

(c2) multiplexing the read sub data and the extra data based upon the navigation information.

25. A recording apparatus comprising:

a recording unit for recording main data including audio data and/or video data, recording sub data to be reproduced in synchronization with the main data in a separate bitstream from the main data, and recording navigation information defining a relation required for the main data and the sub data to be reproduced in synchronization with each other; and

a control unit for generating the navigation information and providing the generated navigation information to the recording unit.

26. The recording apparatus of claim 25, wherein the recording unit further records extra data to be reproduced in connection with the main data in a separate bitstream from the main data and the sub data, and records navigation information

defining a relation required for the main data and the extra data to be reproduced in connection with each other, and

the control unit generates the navigation information defining the relation between the main data and the extra data and provides the generated navigation data to the recording unit.

27. The recording apparatus of claim 26, further comprising a digital interface for receiving the main data and/or the sub data.

28. The recording apparatus of claim 27, wherein the digital interface receives the extra data, and the recording unit records the received extra data and navigation information on the extra data.

29. The recording apparatus of claim 25, further comprising an encoder for receiving and encoding the main data and/or the sub data.

30. A reproducing apparatus comprising:  
a reading unit for reading main data including audio data and/or video data and reading sub data recorded in a separate bitstream from the main data, which is later reproduced in synchronization with the main data; and  
a multiplexer for multiplexing the main data and sub data read by the reading unit.

31. The reproducing apparatus of claim 30, further comprising a digital interface for outputting the multiplexed main data and sub data.

32. The reproducing apparatus of claim 30, further comprising a decoder for decoding the multiplexed main data and sub data.

33. The reproducing apparatus of claim 30, wherein the reading unit reads navigation information defining a relation required for the read main data and sub data to be reproduced in synchronization with each other, and the multiplexer multiplexes the read main data and the read sub data based upon the navigation information.

34. A reproducing apparatus comprising:

a reading unit for reading main data including audio data and/or video data, reading sub data recorded in a separate bitstream from the main data, which is later reproduced in synchronization with the main data, and reading extra data recorded in a separate bitstream from the main data and the sub data, which is later reproduced in connection with the main data; and

a multiplexer for multiplexing the main data, sub data, and extra data read by the reading unit.

35. The reproducing apparatus of claim 34, further comprising a digital interface for outputting the multiplexed main data, sub data, and extra data.

36. The reproducing apparatus of claim 34, further comprising a decoder for decoding the multiplexed main data, sub data, and extra data.

37. The reproducing apparatus of claim 34, wherein the reading unit reads navigation information defining a relation required for the read main data and sub data to be reproduced in synchronization with each other and required for the read main data and extra data to be reproduced in connection with each other, and the multiplexer multiplexes the read main data, the read sub data, and the read extra data based upon the navigation information.

38. A reproducing apparatus comprising:

a reading unit for reading sub data recorded in a separate bitstream from main data including audio data and/or video data, which is later reproduced in synchronization with the main data, and reading extra data recorded in a separate bitstream from the main data and the sub data, which is later reproduced in connection with the main data; and

a multiplexer for multiplexing the sub data and extra data read by the reading unit.

39. The reproducing apparatus of claim 38, further comprising a digital interface for outputting the multiplexed sub data and extra data.